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RECORD OF ORAL HEARING

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex Parte ISAMU OHSHITA, TERUICHI WATANABE, GEN SUZUKI, KUNIZO OGOSHI, and TERUO TOHMA

Appeal 2009-004244
Application 10/620,354
Technology Center 2800

Oral Hearing Held: September 15, 2009

Before JOSEPH F. RUGGIERO, CARLA M. KRIVAK, and BRADLEY W. BAUMEISTER, *Administrative Patent Judges.*

ON BEHALF OF THE APPELLANTS:

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The above-entitled matter came on for hearing Tuesday, September 15, 2009, commencing at 1:00 p.m., at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia, before Samuel Weston, Notary Public.

THE USHER: Calendar No. 47, Appeal Number 2009-004244, Ms. Rowe.

JUDGE RUGGIERO: Counselor --

MS. ROWE: Good afternoon.

JUDGE RUGGIERO: -- do you have a business card or --

MS. ROWE: I do.

JUDGE RUGGIERO: -- do you want to spell your name at least for the --

MS. ROWE: Yes. Your Honor said -- spell my name?

JUDGE RUGGIERO: Yeah, you can just spell it out.

MS. ROWE: It's S-h-e-r-e-e, and my last name is Rowe, R-o-w-e.

JUDGE RUGGIERO: Thank you. Okay, go ahead.

MS. ROWE: Thank you.

An issue critical to the patentability of the organic electroluminescent display device in independent Claim 16 includes the fact that each of the pixels is formed of two light-emitting elements producing two different colors. And the light-emitting element is formed including a pair of electrodes, one of which comprises the plurality of independent array patterns corresponding to the light-emitting elements such that -- yes?

JUDGE KRIVAK: Before you go further, can you explain where that is and what it is?

MS. ROWE: Absolutely.

JUDGE KRIVAK: The claim term, at least one electrode of the pair of electrodes comprises a plurality of independent array patterns?

MS. ROWE: Yes. That is -- that's in the second clause. It begins with wherein, each light-emitting element --

JUDGE KRIVAK: Yes. Yes, where is that in -- where is there support?

MS. ROWE: Oh, in the specification. Absolutely.

JUDGE KRIVAK: Because, yeah, I kind of -- yeah, that would be great.

MS. ROWE: Is it best for me to cite to the published application or to the original filed Application?

JUDGE KRIVAK: To the original filed.

MS. ROWE: Okay. On page 17, line 10 through 11, it describes that the first display electrode, which is element 14, shown in Figures 4 and 5, is an independent array pattern each corresponding to the light-emitting elements, R and B.

JUDGE BAUMEISTER: Okay. Hold on a second while I --

JUDGE KRIVAK: What line was that? Page 17, line?

MS. ROWE: Lines 10 and 11.

JUDGE KRIVAK: Lines 10 and 11. And that's seen in Figures 4 and 5.

MS. ROWE: And if you look to Figures 4 and 5, it shows that the element 14 in Figure 5, you can see that, you know, there's an independent electrode for the red pixel here and for the blue pixel. And then as well, Figure 4 shows that it's not just, you know, the standard column electrode, but they're independent electrode elements in this array pattern. And they show the R and the B being corresponding to the different light-emitting elements within the pixel, which the pixel is shown with the dotted lines.

JUDGE KRIVAK: Okay. Is that just from a typo in your claim language then? Your claim language doesn't necessarily say. It says the

first electrode of independent array pattern, each corresponding to the light-emitting element. The claim says at least one electrode comprises a plurality of independent array patterns corresponding to the light-emitting elements.

MS. ROWE: I'm sorry, I didn't understand your question. Sorry.

JUDGE BAUMEISTER: I guess the question is, the claim says one electrode comprises --

MS. ROWE: Oh, one of the pair of electrodes. You have two different driving electrodes. There's the anode and the cathode. So if you look at Figure 5 again, it shows element 14 is only one of the pair of electrodes. I believe it's element 16 is the other. So it's correctly described where element 16 is a completely separate electrode in that it's just element 14 being one of the pair of electrodes that includes this array pattern.

JUDGE BAUMEISTER: We understand that they're going to be arrayed separately. And, typically, they're going to be in some sort of like overlapping horizontal-vertical grid. But the language itself says that one electrode -- of this pair of electrodes, one electrode comprises a plurality of independent array patterns.

MS. ROWE: Yes.

JUDGE BAUMEISTER: What is the array patterns, plural patterns, that the one electrode comprises?

MS. ROWE: Element 14 is one of the pair of electrodes and it -- Figure 4 shows that element 14 includes these different array of elements -- or of electrode patterns. It's a pattern, an array pattern, including each of these distinct electrode sections of the first of the pair of electrodes. So 14 where it shows, I guess there are eight displayed here, those are eight of the independent array patterns corresponding to that one electrode, element 14.

Electrode 16 would be on a different layer above electrode 14. It's not shown here in Figure 14. So Figure 5 shows a different cross-section where you see the -- there's electrode 14 below, which would be the array pattern. They show two of the different electrode elements that would be in that array pattern, and then electrode 16 overlies the -- between the electrode 14 and 16 there's the electroluminescent layer. So 14 and 16 would be the electrode pair, and the different sections of electrode 14 are arrayed in an independent array pattern.

JUDGE KRIVAK: The electrodes are arrayed in the independent array pattern?

MS. ROWE: The one electrode --

JUDGE KRIVAK: The one electrode.

MS. ROWE: -- of the electrode pair.

JUDGE KRIVAK: Electrode 16 is a common electrode to everything?

MS. ROWE: Yes.

JUDGE KRIVAK: Yeah, it's not separated --

MS. ROWE: Well, not to everything, but --

JUDGE KRIVAK: Right, right.

MS. ROWE: -- it's common to more than one of the light-emitting elements.

JUDGE KRIVAK: Okay. So each of the 14 shown in Figure 4 -- let me just see if I can -- it says, first display electrodes of independent -- each corresponding -- so it shows 14 -- oh, you have R and B both belong to electrode 14? That's one array pattern for electrode 14?

MS. ROWE: Well, they're two different sections of electrode that form that -- the independent array pattern. R corresponds to one light-emitting element within the pixel and B corresponds to, you know, a different, blue here, light-emitting element within the pixel.

JUDGE KRIVAK: Within the pixel?

MS. ROWE: Yeah. And the light-emitting element is being formed by the combination of the two pair of electrodes and the electroluminescent material between.

JUDGE BAUMEISTER: So I see, like in Figure 4, you have line 13. That's interconnected -- I guess, okay. Cathode, anode, lower electrode. Okay, lower electrode 14. So 13 interconnects, the lower electrodes 13, is that right?

MS. ROWE: Yes. I believe that the individual wiring --

JUDGE KRIVAK: I mean, that signal's on.

JUDGE BAUMEISTER: Yeah. I mean, that schematic. I mean, in reality, what's going on? You have a transparent substrate and you have a transparent lower electrode. Is that just going to go on in one strip or, I mean, if they're patterned --

MS. ROWE: No, the pattern is actually very important. The pattern is required in order for to be able to control the gradation of the individual light-emitting elements within a single pixel. The very bottom of the claim describes that the two different light-emitting elements are driven by different electric currents or voltages. So the two light-emitting elements within a single pixel are driven with two different electric currents and --

JUDGE BAUMEISTER: Yeah, I understand that. And then that way you have one common one and then whether you turn on or off the red or the

blue, however much you turn them on, you can change the luminescence and you can shift, blue shift or red shift. I get that. But like within the -- from one pixel to the next, is it really -- I guess I'm trying to figure out where are all these wires going to the -- because it looks like you have wire 13 extending from the upper-left pixel through the lower-left pixel. And, am I right, you're turning on a whole line at a time and then just depending on whether you're biasing both the anode and the cathode that you're going to -- closing the circuit on the anode or cathode is going to dictate which one you turn on?

MS. ROWE: No. As I understand it, it's not just turning on or off an entire line. It's turning on and off to a particular degree a specific light-emitting element within a pixel. So each of the pixels is not only driven separately, but the two different light-emitting elements within a single pixel are driven separately. And that's one of the key differences.

Here, the Office Action, the Final Office Action and the Examiner's Amendment admit that neither Ogura or Kobayashi disclose this driving the two light-emitting elements by different currents or voltages and they cite to Mathis as disclosing this. However, Mathis teaches a voltage compensation system that is designed to compensate for a decay in the pixel due to age. They calculate what additional voltage would need to be supplied to that pixel corresponding to the age of the pixel to maintain a constant brightness. That's to a pixel as a whole. There's no discussion of individually driving two different light-emitting elements within a pixel, according to a different driving current or voltage. And, again, this depends upon the structure described, where one of the electrode pairs comprises this plurality of independent array patterns so that each of the different light-emitting

elements within a single pixel can be driven with a different current or voltage.

And this array pattern is another feature that's not disclosed in the cited art. Right now Ogura is cited as disclosing this feature. Originally, in the Final Office Action, it was stated that paragraph 166 described this feature. However, paragraph 166 just describes a standard column electrode.

In the Examiner's Answer they then cited to paragraphs 9 and 56. Paragraph 9, again, describes the common stripe electrode --

JUDGE KRIVAK: You're talking about Ogura? 166?

MS. ROWE: Yes.

JUDGE KRIVAK: Don't go so fast.

MS. ROWE: Oh, I'm sorry. I'm sorry. Well, so paragraph --

JUDGE KRIVAK: So Ogura 166. Okay.

MS. ROWE: Yeah, Ogura 166 and paragraph 9 of Ogura both describe, you know, the common electrode as a stripe shaped.

JUDGE KRIVAK: Yes.

MS. ROWE: So it's the common stripe-shaped electrode instead of this independent array pattern. And the paragraph 56 describes the -- let me look directly at paragraph 56. It describes the, I believe, the -- they describe it as active matrix EL panels. And, again, matrix design is commonly used to describe, you know, the two different sets of stripe electrode patterns and then when they overlay each other with opposing patterns, this creates a matrix design. But neither of these sections discloses the plurality of independent array patterns for one of the pair of electrodes, which again is key to being able to individually drive each of the light-emitting elements within a single pixel at a different driving voltage or current.

JUDGE BAUMEISTER: Okay. So would you agree or admit that Ogura, if not expressly, at least implicitly, is directed towards a full-color LED display?

MS. ROWE: Ogura when it describes that three of the colors can be used, the three pixels, red, green and blue, that is a full-color display. It's your standard full-color display. Ogura then notes that, you know, it's not always necessary to use three colors; you can use one color, which would just be your standard monochromatic display, or that you can use two colors. But there, using the design in Ogura, you're going to sacrifice image quality for a reduction in the luminescent material type.

A picture was submitted, originally, with the response to the Office Action of October 10th, 2006, and again as Appendix 9 with the Appeal Brief, and it shows -- it was a color picture that showed the difference between the current -- the electroluminescent display as described in Independent Claim 16, where, you know, different driving voltages are applied to the different light-emitting elements controlling the gradation of them, and your standard two-color display as in Ogura. I have copies of that in color, in case you were given black and white copies.

JUDGE KRIVAK: Oh, yes. Yes, you can't see anything in the black and white. It's literally black and white.

MS. ROWE: It totally defeats the purposes of showing it --

JUDGE KRIVAK: Thank you.

MS. ROWE: -- in two different colors. So you can see in the bottom picture, there's a sacrifice in the image quality by reducing the -- one of the colors of the electroluminescent material.

JUDGE BAUMEISTER: Okay. So you're saying for a full-color display, whether you're using three electrodes or two electrodes, that they get that by just turning it on or off, yes or no. It's not a matter of varying the voltage for any --

JUDGE KRIVAK: Each separate --

JUDGE BAUMEISTER: Each single pixel of a -- or each single color of a pixel?

JUDGE KRIVAK: Each LED in the pixel.

MS. ROWE: Yes. As I understand, they -- by using the three different colors and turning those on or off, then you achieve your full-color display. When you remove one of those colors, you degrade the image quality.

JUDGE BAUMEISTER: But -- yeah, okay. But it also says that you can -- in addition to being three color or two color, it can be gray. And my understanding of a gray scale is just that, you're adjusting the luminescence of a LED.

MS. ROWE: I believe the gray scale would be achieved using a monochromatic color.

JUDGE BAUMEISTER: Yeah.

MS. ROWE: You'd use -- you know, the presence or absence of a color based on whether or not an individual pixel is turned on or off, not according to the actual voltage applied to that pixel.

JUDGE BAUMEISTER: Well, okay. I mean, if you assume that all the way on is white and all the way off is black, then partial luminescence would be a shade of gray.

MS. ROWE: Which I -- as I understand, the gray scale is achieved by, you know, individual pixels being turned either on or off --

JUDGE BAUMEISTER: I see.

MS. ROWE: -- and a combination creates the gray scale. Whereas here, they're not just creating an on or off, but they're controlling the gradation of the individual light-emitting elements. Figure 7 of the present application shows that -- shows a chromaticity diagram and shows that by -- so they've selected two different colors. They're -- the black dots correspond to, you know, the individual color if it was turned on or off. And as described in the claim, the mixture of the two different colors produces colors flowing within a line segment between the two colors by controlling the gradation of the individual light-emitting elements. So by controlling the amount of drag and current or voltage that's supplied specifically to the individual light-emitting elements, they're going to change the gradation of the light-emitting element, and it allows them to use this entire line spectrum rather than just, you know, the one blue-green color or the one orange color and a middle color where they're combined.

JUDGE BAUMEISTER: Yeah, where does the spec define gradation? Because I think the Examiner's position is that by choosing your pigment dictates what color is emitted and therefore that is controlling the gradation. So I'm trying to find out is gradation limited to adjusting relevant luminescence or does gradation also include reading on the color as well as the brightness?

MS. ROWE: I'm glad that you brought that up. The Examiner has, you know, described that by selecting the individual colors that you are then controlling gradation. And we point out that selecting individual colors is

having these two different colors of a predetermined chromaticity value, and that describes that you're selecting particular colors. And then it's in -- on page 15, line 6 through 10, it describes that, you know, the high quality quasi-color images are provided even with the two-color structure by controlling the gradations of the two colors constituting a pixel. The gradations of light emitted from each of the two light-emitting elements is controlled by changing its drag or current or voltage. So you're specifically changing the gradations of emitted light by controlling -- by changing a drag or a current or voltage. It goes beyond just selecting the chromaticity of the electroluminescent materials that you'll be providing in the display.

I believe that my time is nearly up, but I'd just like to point out that none of the references teach each of the features residing in independent Claim 16 that Mathis and, as already admitted, Ogura and Kobayashi fail to disclose this two light-emitting elements within a single pixel being driven by a different voltage or current, which is what allows the control of gradation and the quasi-color display to be performed. And as well, none of the references disclose or suggest the independent array pattern for one of the pair of electrodes. So based on these elements that are missing from the cited art, we would request a withdrawal of the current rejection of Independent Claim 16.

JUDGE BAUMEISTER: I guess one other line of questions.

MS. ROWE: Okay.

JUDGE BAUMEISTER: Let's see, Figure 2 --

MS. ROWE: Figure 2.

JUDGE BAUMEISTER: -- of your disclosure shows the CIE coordinate of .31.316.

MS. ROWE: Yes.

JUDGE BAUMEISTER: And Claim 16 has a coordinate of .31.36. Which is right?

MS. ROWE: I believe that it's the .31.36, as described in the claim. And I think that corresponds to the actual term that's in the specification.

JUDGE KRIVAK: Well, actually the spec --

MS. ROWE: No, it does. You're right. The specification says .316. And that's something that I would have to follow up with that.

JUDGE BAUMEISTER: Okay. That's something that ought to be clarified.

MS. ROWE: Okay. Thank you.

JUDGE RUGGIERO: Any other questions?

JUDGE KRIVAK: I do not. Do you?

JUDGE BAUMEISTER: I think --

MS. ROWE: Thank you very much.

JUDGE KRIVAK: Thank you very much.

(Whereupon, the proceeding concluded.)